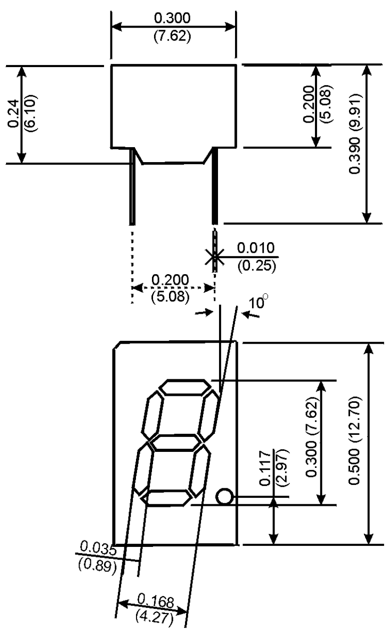
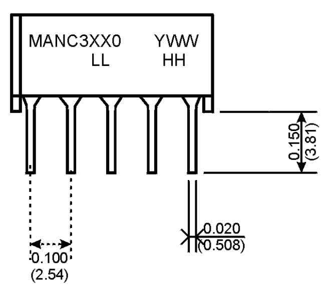
# 7.6mm (0.3 inch) COMPACT NUMERIC FRAME DISPLAY

## Bright Red MANC3110, MANC3140
## High Efficiency Red MANC3910, MANC3940
## Green MANC3410, MANC3440

TR/QTO/SV001

## PACKAGE DIMENSIONS




### NOTES:

•Dimensions are iinches (mm)

•Tolerances are +/- 0.010 (0.25mm) unless otherwise stated.

## FEATURES

•Bright Bold Segments

•Common Anode/Cathode

•Low Power Consumption

•Low Current Capability

•Neutral Segments

•Grey Face

•Epoxy Encapsulated Frame

•High Performance

•High Reliability

## APPLICATIONS

•Appliances

•Automotive

•Instrumentation

•Process Control

## MODELS AVAILABLE

| Part Number | Colour | Description | Recommended $I_F$ Levels |
|---|---|---|---|
| MANC3110 | Bright Red | Common Anode | Standard Current (5mA - 20mA) |
| MANC3140 | Bright Red | Common Cathode | Standard Current (5mA - 20mA) |
| MANC3410 | Green | Common Anode | Standard Current (5mA - 20mA) |
| MANC3440 | Green | Common Cathode | Standard Current (5mA - 20mA) |
| MANC3910 | High Efficiency Red | Common Anode | Standard Current (5mA - 20mA) |
| MANC3940 | High Efficiency Red | Common Cathode | Standard Current (5mA - 20mA) |
| | | | |
| | | | |

(For other colour options, contact your local area Sales Manager)

# 7.6mm (0.3 inch) COMPACT NUMERIC FRAME DISPLAY

## ABSOLUTE MAXIMUM RATINGS[1] ($T_A$ = 25ºC, unless otherwise specified)

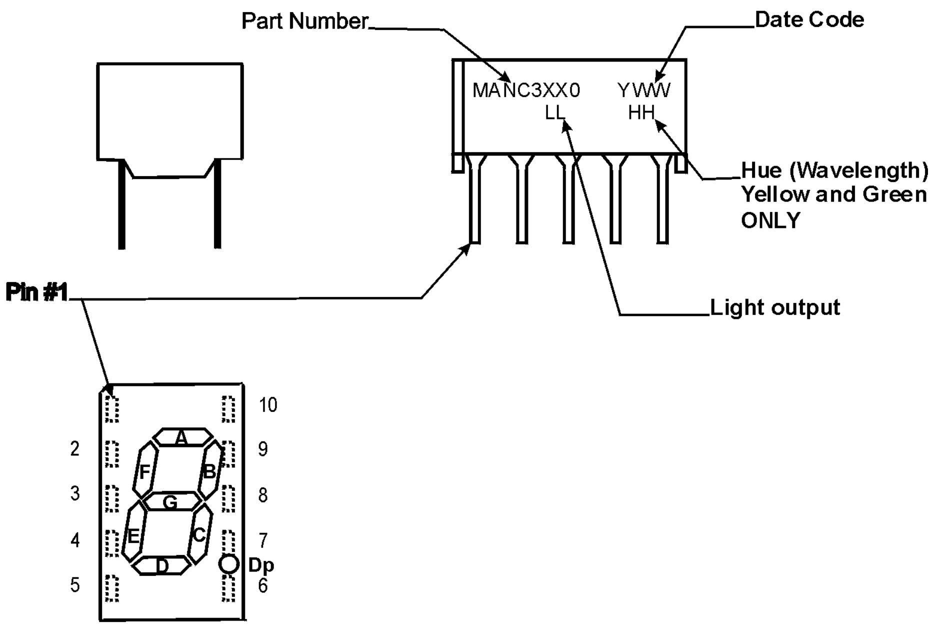
| Part Number / Parameter | MANC3110 / MANC3140 | MANC3410 / MANC3440 | MANC3910 / MANC3940 | Units |
|---|---|---|---|---|
| **Continuous Forward Current** (each segment) | 15 | 25 | 25 | mA |
| **Peak Forward Current** (F = 10KHz, D/F = 1/10) | 60 | 90 | 90 | mA |
| **Power Dissipation ($P_D$)** | 40 | 70 | 70 | mW |
| ***Derate Linearly from 25ºC** | 0.17 | 0.33 | 0.33 | mW |
| **Reverse Voltage per Die** | 5 Volts | | | |
| **Operating and Storage Temperature Range** | -40ºC to +85ºC | | | |
| **Lead soldering time (1/16 inch from standoffs)** | 5 seconds @ 230ºC | | | |

## ELECTRO-OPTICAL CHARACTERISTICS[1] ($T_A$ = 25ºC, unless otherwise specified)

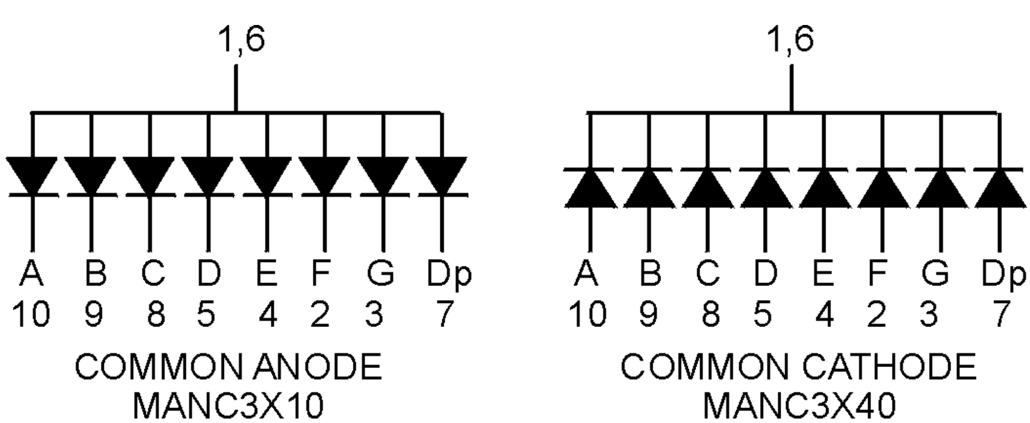
| Part Number / Parameter | MANC3110 / MANC3140 | MANC3410 / MANC3440 | MANC3910 / MANC3940 | Units | Test Condition |
|---|---|---|---|---|---|
| **Luminous intensity[2] ($I_V$)** | | | | | |
| Minimum ( Standard Current) | | 860 | 980 | ucd | $I_F$ = 5mA |
| Typical (Standard Current) | 700 | 6800 | 5390 | ucd | $I_F$ = 20mA |
| For low current versions see | MAN3H10 | MAN3G10 | MAN3R10 | | |
| | MAN3H40 | MAN3G40 | MAN3R40 | | |
| **Forward Voltage ($V_F$)** | | | | | |
| Typical (Standard Current) | 2.10 | 2.10 | 2.00 | Volts | $I_F$ = 20mA |
| Maximum (Standard Current) | 2.80 | 2.80 | 2.50 | Volts | $I_F$ = 20mA |
| **Peak Wavelength** | 700 | 568 | 643 | nm | $I_F$ = 20mA |
| **Dominant Wavelength** | | 573 | 632 | nm | $I_F$ = 20mA |
| **Spectral Line 1/2 Width** | 90 | 30 | 45 | nm | $I_F$ = 10mA |
| **Reverse B[3].Voltage ($V_R$)** | 5 | 5 | 5 | Volts | $I_R$ = 100uA |

NOTES:
(1) Data per individual LED element
(2) Luminous intensity (ucd) = average light output per segment
(3) B = breakdown

## PIN ORIENTATION, SEGMENT IDENTIFICATION, AND PRODUCT MARKING




## SCHEMATICS



## GRAPHICAL DATA Bright Red ($T_A$ = 25ºC, unless otherwise specified)

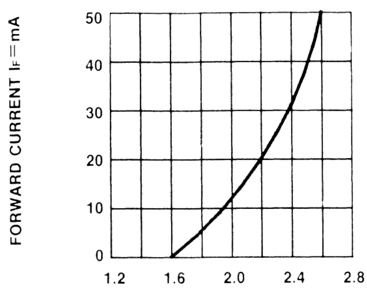



Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

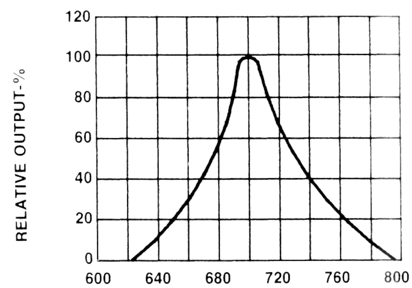



Fig.2 SPECTRAL RESPONSE

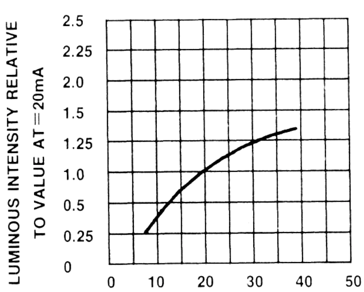



Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

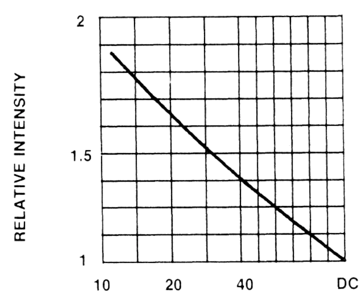



Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

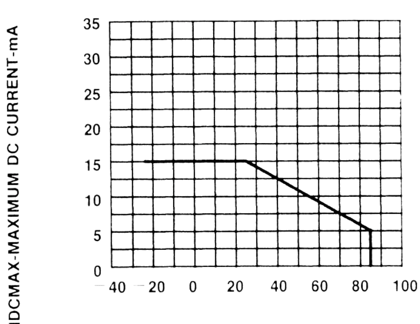



Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

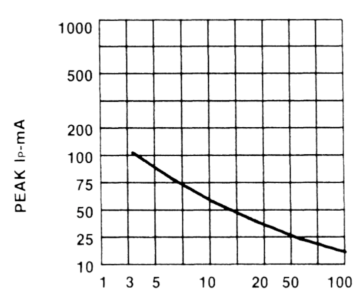



Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE %
(REFRESH RATE f=1 KHz)

FAIRCHILD SEMICONDUCTOR™

# 7.6mm (0.3 inch) COMPACT NUMERIC FRAME DISPLAY

## GRAPHICAL DATA Green ($T_A$ = 25°C, unless otherwise specified)

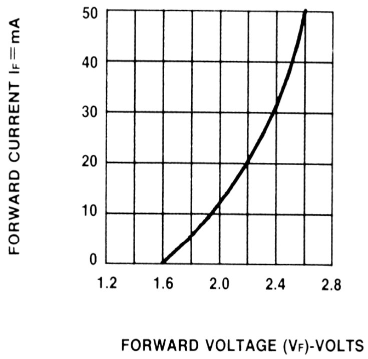



Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

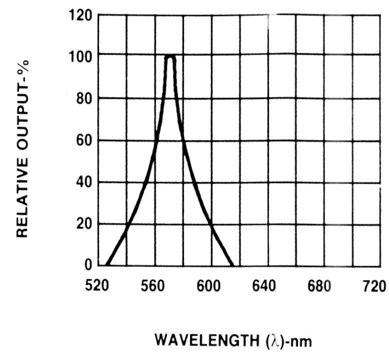



Fig.2 SPECTRAL RESPONSE

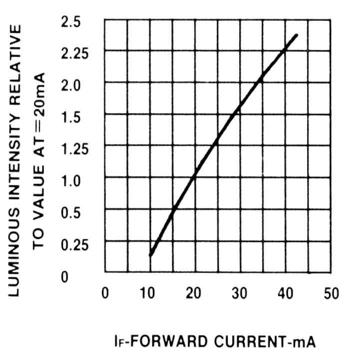
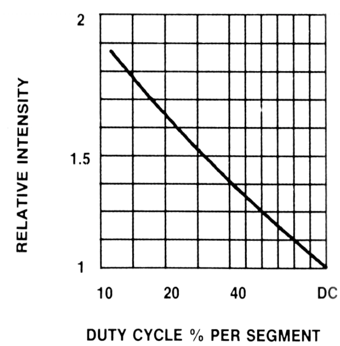



Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT




(AVERAGE IF=10mA)

Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

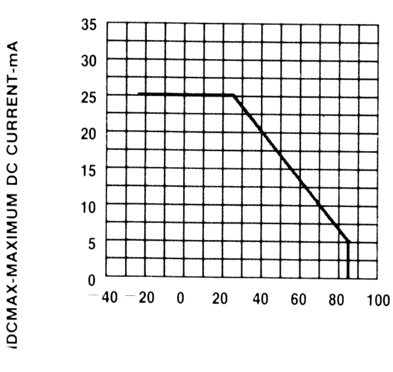



Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT CS. A FUNCTION OF AMBIENT TEMPERATURE.

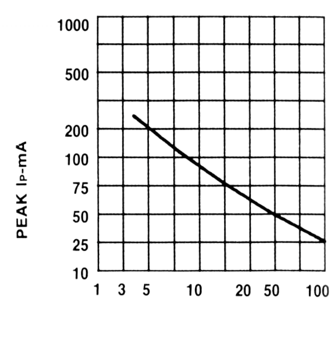


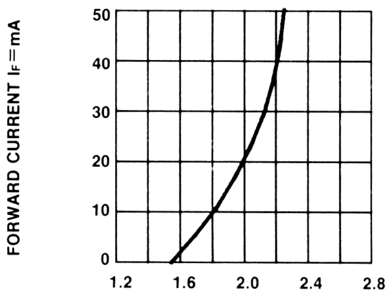

Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE %

(REFRESH RATE f=1 KHz)

FAIRCHILD SEMICONDUCTOR™

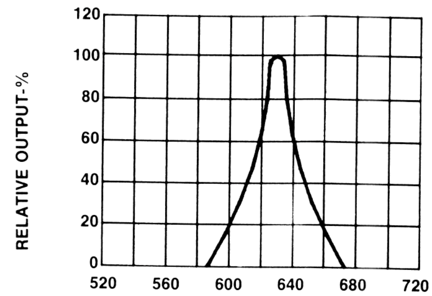
# 7.6mm (0.3 inch) COMPACT NUMERIC FRAME DISPLAY

## GRAPHICAL DATA High Efficiency Red($T_A$ = 25ºC, unless otherwise specified)



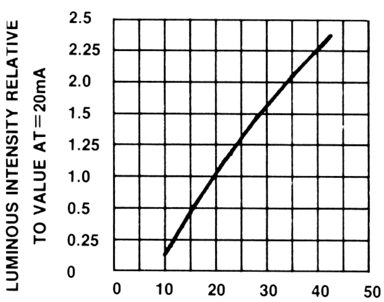

FORWARD VOLTAGE (VF)-VOLTS

Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.



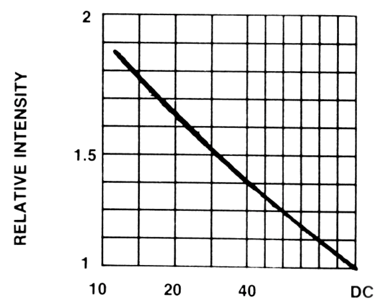

WAVELENGTH (λ)-nm

Fig.2 SPECTRAL RESPONSE




IF-FORWARD CURRENT-mA

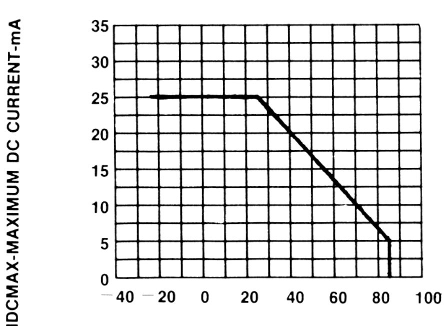
Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT




DUTY CYCLE % PER SEGMENT

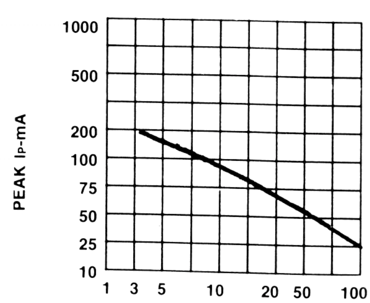
(AVERAGE IF=10mA)

Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE




TA AMBIENT TEMPERATURE ℃

Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.




DUTY CYCLE %

Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE %

(REFRESH RATE f=1 KHz)

FAIRCHILD SEMICONDUCTOR™

# 7.6mm (0.3 inch) COMPACT NUMERIC FRAME DISPLAY

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.